

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

ACTION: Notice of Request for Information (RFI).

SUMMARY: The purpose of this Request for Information (RFI) is to solicit input from all interested parties regarding recommendations for the development of a National Plan for Civil Earth Observations (“National Plan”). The public input provided in response to this Notice will inform the Office of Science and Technology Policy (OSTP) as it works with Federal agencies and other stakeholders to develop this Plan.

DATES: Responses must be received by December 6, 2013 to be considered.

SUBMISSION: You may submit comments by any of the following methods.

- **Downloadable form:** To aid in information collection and analysis, OSTP encourages responses to be provided using this form. Please enter your responses in the fillable fields that follow the questions below.
- **Email:** OSTP encourages respondents to email the completed form, as an attachment, to earthobsplan@ostp.gov. Please include “National Plan for Civil Earth Observations” in the subject line of the message.
- **Fax:** (202) 456-6071.
- **Mail:** Office of Science and Technology Policy, 1650 Pennsylvania Avenue, NW, Washington, DC, 20504. Information submitted by postal mail should allow ample time for processing by security.

Response to this RFI is voluntary. Respondents need not reply to all questions listed. Each individual or institution is requested to only submit one response. Responses to this RFI, including the names of the authors and their institutional affiliations, if provided, may be posted on line. OSTP therefore requests that no business proprietary information, copyrighted information, or personally-identifiable information be submitted in response to this RFI. Given the public and governmental nature of the National Plan, OSTP deems it unnecessary to receive or to use business proprietary information in its development. Please note that the U.S. Government will not pay for response preparation, or for the use of any information contained in the response.

FOR FURTHER INFORMATION CONTACT:

Timothy Stryker, 202-419-3471, tstryker@ostp.eop.gov, OSTP.

SUPPLEMENTARY INFORMATION:

Background

The U.S. Government is the world's largest single provider of civil environmental and Earth-system data. These data are derived from Earth observations collected by numerous Federal agencies and partners in support of their missions and are critical to the protection of human life and property; economic growth; national and homeland security; and scientific research. Because they are provided through public funding, these data are made freely accessible to the greatest extent possible to all users to advance human knowledge, to enable industry to provide value-added services, and for general public use.

Federal investments in Earth observation activities ensure that decision makers, businesses, first responders, farmers, and a wide array of other stakeholders have the information they need about climate and weather; natural hazards; land-use change; ecosystem health; water; natural resources; and other characteristics of the Earth system. Taken together, Earth observations provide the indispensable foundation for meeting the Federal Government's long-term sustainability objectives and advancing the Nation's societal, environmental, and economic well-being.

As the Nation's capacity to observe Earth systems has grown, however, so has the complexity of sustaining and coordinating civil Earth observation research, operations, and related activities. In October 2010, Congress charged the Director of OSTP to address this challenge by producing and routinely updating a strategic plan for civil Earth observations (see *National Aeronautics and Space Administration Authorization Act of 2010, Public Law 111-267, Section 702*).

Responding to Congress, in April 2013, OSTP released a [National Strategy for Civil Earth Observations](#) ("the National Strategy").

In April 2013, OSTP also re-chartered the U.S. Group on Earth Observations (USGEO) Subcommittee of the National Science and Technology Council's Committee on Environment, Natural Resources, and Sustainability. USGEO will carry out the National Strategy and support the formulation of the National Plan.

As requested by Congress, the National Plan is being developed by USGEO to advise Federal agencies on the Strategy's implementation through their investments in and operation of civil Earth observation systems. The Plan will provide a routine process, on a three-year cycle, for assessing the Nation's Earth observation investments; improving data management activities; and enhancing related interagency and international coordination. Through this approach, the Plan will seek to facilitate stable, continuous, and coordinated Earth observation capabilities for the benefit of society.

Congress also requested that development of the National Plan include a process for collecting external independent advisory input. OSTP is seeking such public advisory input through this RFI. The public input provided in response to this Notice will inform OSTP and USGEO as they work with Federal agencies and other stakeholders to develop the Plan.

Definitions and Descriptions

The term “**Earth observation**” refers to data and information products from Earth-observing systems and surveys.

“**Observing systems**” refers to one or more sensing elements that directly or indirectly collect observations of the Earth, measure environmental parameters, or survey biological or other Earth resources (land surface, biosphere, solid Earth, atmosphere, and oceans).

“**Sensing elements**” may be deployed as individual sensors or in constellations or networks, and may include instrumentation or human elements.

“**Observing system platforms**” may be mobile or fixed and are space-based, airborne, terrestrial, freshwater, or marine-based. Observing systems increasingly consist of integrated platforms that support remotely sensed, *in-situ*, and human observations.

Assessing the Benefits of U.S. Civil Earth Observation Systems

To assist decision-makers at all levels of society, the U.S. Government intends to routinely assess its wide range of civil Earth observation systems according to the ability of those systems to provide relevant data and information about the following Societal Benefit Areas (SBAs):

1. Agriculture and Forestry
2. Biodiversity
3. Climate
4. Disasters
5. Ecosystems (Terrestrial and Freshwater)
6. Energy and Mineral Resources
7. Human Health
8. Ocean and Coastal Resources and Ecosystems
9. Space Weather
10. Transportation
11. Water Resources
12. Weather

The U.S. Government also intends to consider how current and future reference measurements (*e.g.*, bathymetry, geodesy, geolocation, topography) can enable improved observations and information delivery.

To address measurement needs in the SBAs, the U.S. Government operates a wide range of atmospheric, oceanic, and terrestrial observing systems. These systems are designed to provide: (a) sustained observations supporting the delivery of services, (b) sustained observations for research, or (c) experimental observations to address specific scientific questions, further technological innovation, or improve services.

Questions to Inform Development of the National Plan

Name (optional): Nolan Doesken

Position (optional): Colorado State Climatologist

Institution (optional): Colorado Climate Center, Colorado State Univ.

Through this RFI, OSTP seeks responses to the following questions:

1. Are the 12 SBAs listed above sufficiently comprehensive?

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- a. Should additional SBAs be considered?

[Click here to enter text.](#)

- b. Should any SBA be eliminated?

[Click here to enter text.](#)

2. Are there alternative methods for categorizing Earth observations that would help the U.S. Government routinely evaluate the sufficiency of Earth observation systems?

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3. What management, procurement, development, and operational approaches should the U.S. Government employ to adequately support sustained observations for services, sustained observations for research, and experimental observations? What is the best ratio of support among these three areas?

[See combined answers addressing questions 3, 4, 7 and to some extent 9 under question 4 space](#)

4. How should the U.S. Government ensure the continuity of key Earth observations, and for which data streams (*e.g.*, weather forecasting, land surface change analysis, sea level monitoring, climate-change research)?

[Addressing questions 3, 4, 7 and to some extent 9: Going forward, when new observing systems managed by a specific agency \(such as FAA, NOAA, etc.\) are being upgraded or replaced – please allow other Federal and non-federal agencies to review the system requirements and specifications early in the process to determine if different or additional sensors could be added, ideally at a low unit cost, that would serve broader applications and a wider user base. For example, in the 1990s when FAA established the requirements for automated surface weather observing systems at U.S. airports in support of aviation operations and air traffic control,](#)

accurate measurements of precipitation and solar radiation, and useful measurements of snowfall, snow depth, and snow water content were not “required” and hence were not included in the design and implementation of this observation network. This network moved forward despite the outcries from the larger meteorological and climatological user community, aware that the aviation weather data would also become primary applied meteorology, research meteorology and climatology data sets. Nearly twenty years later, and tens of millions of dollars later, we still suffer from this short sightedness.

5. Are there scientific and technological advances that the U.S. Government should consider integrating into its portfolio of systems that will make Earth observations more efficient, accurate, or economical? If so, please elaborate.

With respect to questions 5 and 6: Here in the 2nd decade of the 21st century, low-tech low-cost approaches to observations and monitoring seem unthinkable. However, I want to point out to you that there are millions of weather-curious individuals distributed across every nook and cranny of our huge country who are keenly interested in their local environment and capable, to varying degrees, of helping gather and report critical local environmental observations. The term and practice known as “Citizen Science” which has become very popular in the past decade or two, but has actually been an important facet of U.S. climate monitoring all the way back to the early and mid 19th Century, should have a place in the Government portfolio. There should be funding mechanisms arranged to channel a small but reliable fraction of federal funds towards these endeavors. Let’s use precipitation as our example – a critical environmental measurement for so many reasons. There are various approaches to measuring or estimating rainfall and snow accumulation remotely and at point weather stations – often at a considerable and ongoing cost. However, manual measurements of rain, hail and snow with simple low-cost instruments, often provide the most accurate “ground truth” needed for almost all of the identified “Societal Benefit Areas”. As a result, it is essential to support and maintain NOAA’s Cooperative Observer Network and to provide a level of base support for projects like the Community Collaborative Rain, Hail and Snow network (CoCoRaHS) with a proven track record for engaging citizen participation in high quality environmental monitoring.

6. How can the U.S. Government improve the spatial and temporal resolution, sample density, and geographic coverage of its Earth observation networks with cost-effective, innovative new approaches?

See combined answers addressing questions 5 and 6 question 5 space

7. Are there management or organizational improvements that the U.S. Government should consider that will make Earth observation more efficient or economical?

See combined answers addressing questions 3, 4, 7 and to some extent 9 under question 4 space

8. Can advances in information and data management technologies enable coordinated observing and the integration of observations from multiple U.S. Government Earth observation platforms?

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9. What policies and procedures should the U.S. Government consider to ensure that its Earth observation data and information products are fully discoverable, accessible, and useable?

[See combined answers addressing questions 3, 4, 7 and to some extent 9 under question 4 space](#)

10. Are there policies or technological advances that the U.S. Government should consider to enhance access to Earth observation data while also reducing management redundancies across Federal agencies?

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11. What types of public-private partnerships should the U.S. Government consider to address current gaps in Earth observation data coverage and enhance the full and open exchange of Earth observation data for national and global applications?

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12. What types of interagency and international agreements can and should be pursued for these same purposes?

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